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Personal Attributes as Predictors of Military Leadership: A Study of Midshipmen Leaders at USNA

Leanne Atwater and Francis J. Yammarino

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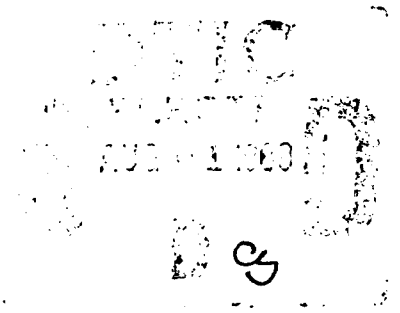

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A set of variables assessing personal attributes (e.g., personality, thinking style, psychological type [MBTI], interests, and life experiences) were investigated as predictors of transformational and transactional leadership in a sample of 107 midshipmen (focal) leaders at the U.S. Naval Academy. The midshipmen leaders provided self-report information on the personal attributes. Their 1235 plebe subordinates and the midshipmen's superiors provided ratings of the focal midshipmen's transformational and transactional leadership. Results from correlational and regression analyses indicated that (1) different categories of personal attributes were generally independent of one another; (2) various individual interests, thinking styles, personality traits, and experiences were predictive of transformational and transactional leadership as rated by subordinates and superiors; and (3) when combined, thinking style (two measures), personality traits (three measures),
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PERSONAL ATTRIBUTES AS PREDICTORS OF MILITARY LEADERSHIP: A STUDY OF MIDSHIPMEN LEADERS AT USNA

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Abstract

A set of variables assessing personal attributes (e.g., personality, thinking style, psychological type [MBTI], interests, and life experiences) were investigated as predictors of transformational and transactional leadership in a sample of 107 midshipmen (focal) leaders at the U.S. Naval Academy. The midshipmen leaders provided self-report information on the personal attributes. Their 1235 plebe subordinates and the midshipmen's superiors provided ratings of the focal midshipmen's transformational and transactional leadership. Results from correlational and regression analyses indicated that (1) different categories of personal attributes were generally independent of one another; (2) various individual interests, thinking styles, personality traits, and experiences were predictive of transformational and transactional leadership as rated by subordinates and superiors; and (3) when combined, thinking style (two measures), personality traits (three measures), psychological type (two measures), and experience (one measure) were predictive of transformational and transactional leadership of focal midshipmen as rated by their superiors and subordinates (Multiple Rs = .447 to .572 for four equations).

PERSONAL ATTRIBUTES AS PREDICTORS OF MILITARY LEADERSHIP: A STUDY OF MIDSHIPMEN LEADERS AT USNA

Background

The challenges facing the U. S. armed forces in terms of the shrinking personnel pool, increasing training pipelines, and new warfare methods make the need for effective military leadership more important than ever. The increasing technology, uncertainty of future battlefields, threats of terrorism, and nuclear and chemical warfare require military leaders to adapt, think, and act in ways to meet the demands of highly stressful, rapidly changing circumstances (Hunt & Blair, 1985).

Efforts to maximize effective leadership can take one of two basic avenues: selection or training. Historically, training has received the greatest amount of attention. Leaders have been trained to behave in more effective ways as a function of the task or characteristics of their subordinates. Fiedler and his colleagues have had some success training leaders to alter situations to fit their leadership style (Fiedler & Mahar, 1979). Before the introduction of assessment centers, leader selection received surprisingly little attention (see Bass, 1981). Assessment centers have achieved some success in predicting managerial success, but the time and energy involved in using this method prohibits its use for more than a small number of job applicants.

Although leadership training has been available for years, many believe that no amount of training will produce "good leaders" if the individual being trained lacks basic leadership potential. Segal (1985) contends that it is likely that a large part of an individual's leadership potential refers to innate attributes which are brought out by the group process and

which are not uniformly distributed in the population. Segal (1985) believes that persons with basic interpersonal skills that comprise leadership potential can be taught to sharpen those skills and to better understand group processes. He also asserts that people who lack the potential will not become effective leaders no matter how smart they are, how much training they receive, or how supportive the groups are that they lead.

Why aren't methods available to select individuals with leadership potential to become future military officers? There are two probable reasons to explain why selection has received little attention in military or industrial leadership research (see Bass, 1981). The first stems from the research done in the 1950s and 1960s trying to relate personal traits to leadership. In general, the conclusions reached were that isolating traits that could distinguish effective leaders from non-leaders, or effective leaders from poor leaders was not a very fruitful endeavor. Consequently, leadership research moved into other areas such as identifying leadership behaviors best suited for various jobs and/or types of subordinates. The second reason is the lack of agreement about exactly what constitutes "good leadership" and the difficulties encountered in operationalizing leadership. Before predicting who will become leaders, the definition and measurement of leadership must be enhanced.

Recent reviews (House & Baetz, 1979; Lord, DeVader, & Alliger, 1986) have suggested that perhaps "the baby was thrown out with the bath water" when leader traits were abandoned. Weiss and Adler (1984) argue that applied research in the area of personality has suffered from inadequate conceptual development as well as poor methodology. They suggest that the study of personality in organizational research was dropped prematurely.

Instead of looking for consistent effects, attention focused too heavily on looking for large effects. For instance, Bass (1981), in his review of much of the leadership trait research, concluded that intelligence, dependability, aggressiveness, and adaptability were repeatedly associated with leader style and effectiveness. Similarly, Lord et al. (1986) using validity generalization, summarized the data from two earlier reviews and concluded that intelligence, masculinity, and dominance were consistently related to leadership perceptions. House and Baetz (1979) suggested that the correlations between traits and leadership were quite high and they encouraged another look at the relationships between leader traits and leader criteria.

The re-introduction of traits or other individual level variables as correlates of leadership has appeal for those interested in selection, particularly for those selecting future leaders for the U.S. military. At the present time, the real test of leadership potential is, in essence, "trial by fire." An individual must have some of the basic ingredients of a leader to function in the leadership roles to which all officers are assigned. But no formal mechanisms exist for evaluating "true" leadership potential nor for selecting those most likely to succeed as leaders. If leader selection were improved, not only would the mission of producing effective officers be made easier, the ultimate goal of increasing war-fighting capabilities would also improve.

The first challenge is to discover what the military identifies as "good leadership." To those in the military, leadership and management are distinct entities. An ideal military leader is envisioned as an inspiring, dynamic, heroic, role-model; an individual who subordinates would follow up a hill into enemy fire. "Leaders lead people and managers manage

activities" (Schneider, 1989). While an effective CEO probably needs as much if not more management skills than s/he needs leadership skills, management skills are believed to be less important to a military leader, especially in wartime (Meyer, 1980).

The conceptualization of leadership most consistent with the military ideal is Bass' (1985) notion of transformational leadership. According to Bass (1985), transformational leaders instill in followers trust, respect, and a willingness to perform at peak levels. They encourage followers to believe in themselves as well as in the group's mission. Frequently, transformational leaders are seen as heroic.

In contrast, transactional leadership emphasizes the exchanges that take place between leaders and followers (e.g., rewards subordinates will receive for certain levels of performance). Transactional leaders inform subordinates about what needs to be done to receive rewards and what behaviors will result in punishment. Transformational leadership is an expansion of the leadership concept which builds upon a transactional leadership base, using both transformational and transactional behaviors to achieve maximum unit effectiveness. Transformational leaders possess transactional features and more (Waldman, Bass, & Yammarino, 1988).

Consequently, it should come as no surprise that transformational leaders are more effective than transactional leaders. This has been demonstrated in numerous studies (Bass, 1985; Bass & Avolio, 1989; Hater & Bass, 1988) including a study of Naval Officers in the surface warfare community (see Yammarino & Bass, 1989). It follows that military effectiveness could be enhanced if transformational leadership was increased among military officers.

There is considerable evidence that leadership skills can be improved

by training (Bass, 1981). But another fruitful avenue may be to select individuals with personal qualities that make them more amenable to leadership training--individuals with leadership potential. Earlier work with Navy leaders assessed the usefulness of the variables used currently to make selection decisions for admittance to the U. S. Naval Academy (USNA) in predicting leadership. These results indicated that the selection variables (i.e., SAT scores, engineering and science interests, recommendations from high school officials, extra curricular activities, and high school rank), while good predictors of academic success, were unrelated to transformational or transactional leadership behavior at the Academy or in the Navy fleet years later (see Yammarino & Bass, 1989; Atwater & Yammarino, 1989).

The present study assessed a different set of potential predictors, namely, measures of personal attributes. Specifically, a number of variables assessing personality, thinking style, psychological types, interests, and life experiences were investigated as possible predictors of transformational and transactional leadership. The sample studied were midshipmen leaders at the U. S. Naval Academy.

Selecting Potential Predictors

Midshipmen at the Naval Academy are subjected to many tests as applicants, upon admission, and throughout their four years of training. Among the data available are a measure of personality (Cattell's Sixteen Personality Factors [16PF], Cattell, 1950), psychological type (Myers-Briggs Type Indicator [MBTI], Myers & McCaulley, 1986), vocational interests (Strong-Campbell Interest Inventory [SCII], Campbell, 1974), and various USNA performance indicators such as military performance grades and the number of varsity sports played by the midshipmen. These measures provide a

wealth of information about personal attributes of these young leaders. The challenge to the investigator is to develop research-based hypotheses about which of the many available measures are the most likely predictors of leadership.

Traits

Research suggests that intelligence would be among the traits predictive of leadership (Fiedler & Garcia, 1987; Lord et al., 1986; Bass, 1981). Lord et al. (1986), in their discussion of Mann's (1959) review, indicated that 88% of the studies found positive relationships between intelligence and leadership. Also likely correlates are measures of dominance or aggressiveness (Bass, 1981) and warmth or people orientation (Bass, 1985). Bass (1985) suggests that social or affiliation orientation would be more likely among transactional leaders than transformational leaders. Transformational leaders may be more power-oriented.

In a military environment, self-discipline and conformity would also be expected to be associated with effective leadership. Leaders must set an example and provide a role model. In the military, a role model must conform to numerous rules and regulations. Campbell (1986) found U. S. Army generals scored higher than high level executives on conformity. Singer and Singer (1986) found conformity to be related to transformational leadership among "ideal leaders" as reported by college students.

Psychological Type (MBTI)

Psychological type, as measured by the Myers-Briggs Type Indicator (MBTI), has been used extensively in organizations, primarily as an organizational development tool designed to enable managers to understand one another better. Psychological type can be thought of as a quasi-personality measure, assessing one's preferences for methods of:

(1) collecting information, (2) making decisions, (3) relating to people, and (4) organizing one's life. In an organizational development application of MBTI, managers learn about their own type as well as the types of those with whom they interact. Such information facilitates understanding of why they and others behave as they do. Based on the type descriptions provided by Myers and McCaulley (1986), it was hypothesized that three of the four preference types would be related to leadership. Relating to people (Extraversion/Introversion), acquiring information (via Senses/Intuition), and making decisions (dominated by Thinking/Feeling) were expected to be relevant to leadership. The fourth preference for means of organizing one's life (Judging/Perceiving) was not expected to be related to leadership.

Experience-Varsity Sports

Most leadership experts would agree that experiences in life have an impact upon leadership development (see Bass, 1981). Athletics are an activity thought by many military officers to be a valuable experience for military leaders. Campbell (1986) found general officers in the Army scored high on athletic interests compared to national norms and to a sample of individuals in a leadership training program. Earlier work with Naval Academy midshipmen suggested that playing a varsity sport was related to transformational and transactional leadership as perceived by subordinates (Atwater & Yammarino, 1989). It has been suggested that playing on a varsity team served as leadership training because team members learned cooperation, teamwork, and positive motivational skills (Atwater & Yammarino, 1989). It was hypothesized that this experiential variable would operate as a predictor of subsequent leadership performance.

Vocational Interests (SCII)

Previous research suggests that one's vocational interests may be predictive of leadership success. Nash (1965) reviewed research on the vocational interests of managers and found that managers tend to be interested in verbal and persuasive activities and that they have a strong interest in interacting with people, especially in relationships where the manager is dominant. Managers also prefer activities that involve independent thought, initiative, and risk. Campbell (1986) found that leaders tend to show low levels of interest in domestic activities, art, music, and nature; and high levels of interest in adventure, military, politics, and management. It was hypothesized that interests as assessed by the SCII would be related to leadership.

Thinking Styles (CTI)

Intelligence, as measured traditionally, is an excellent predictor of success in school, but has little or nothing to do with who will earn the most money or prestige, or have the most satisfying relationships. However, intelligence defined as "common sense" may be more important. According to Seymour Epstein at the University of Massachusetts, "how well people manage their emotions determines how effectively they can use their intellectual ability...if someone is facile at solving problems in the quiet of her office but falls apart in a group, then she will be ineffective in a great many situations" (New York Times, April 5, 1988). Dr. Epstein developed the Constructive Thinking Inventory (CTI) which measures an individual's ability to respond effectively to life. This test is a new development in assessing constructive and "counter-productive" thinking skills. Bass (1985) indicates that while transactional and transformational leaders may be equally intelligent, transformational leaders are expected to be more

proactive and creative. The present study used the CTI in an exploratory analysis to assess its usefulness as a predictor of transactional and transformational leadership.

Method

Sample

The focal leaders in this study were 99 male and eight female midshipmen at USNA selected to serve as Plebe Summer squad leaders during the first three weeks of plebe (freshman) indoctrination. Plebe Summer squad leaders are chosen from members of the incoming first and second class midshipmen (seniors and juniors) on the basis of their demonstrated performance and leadership abilities. They spend three weeks of their summer indoctrinating the incoming plebes into life at USNA. As part of the indoctrination process, the squad leaders teach plebes to wear uniforms, march, salute, deal with pressure, and become members of the U. S. Navy. Squad leaders, in essence, transform civilians into members of a highly regimented military culture.

Each squad leader is in charge of 11 to 13 plebes. The squad leaders spend almost all of their time during the assigned three weeks with the plebes. The plebes assert that by the end of the three weeks they know their squad leader very well.

The plebes (subordinates) reporting to each squad leader also served as participants in the study. The subordinate sample consisted of 1,235 plebes (89% male) who completed questionnaires on the last day of the three-week indoctrination period about their squad leaders' leadership. The plebes then rotated into a new plebe summer squad with an entirely new group of squad leaders to complete the final three-week indoctrination period. The 107 squad leaders then either left USNA for their summer cruise or began

their next summer assignment.

Eleven Company Officers, Navy Lieutenants or Marine Corps Captains assigned to USNA for two to three years, in charge of the summer squads also participated in the study. They completed questionnaires rating the squad leaders in their company on leadership. (Company Officer data were incomplete as two Company Officers failed to return their questionnaires.)

Descriptive information was obtained from members of each participant group and can be summarized as follows:

1. The squad leaders' ages ranged from 19 to 22. Fifty seven percent were about to enter their junior (second class) year. Seventy-four percent of the squad leaders were math, science, or engineering majors. Twenty-six percent were humanities or social science majors. Forty-two percent indicated that their first choice for service selection would be air, 20% said submarines, 15% stated surface, 12% preferred Marines, and 11% responded with "other."

2. Plebes were generally between 18 and 20 years old; only 4% were over 20. After three weeks of indoctrination, 96% were committed to graduating from USNA.

3. Seventy-four percent of the Company Officers were USNA graduates. Fifty-two percent of the Company Officers had known the midshipmen they were evaluating before they became plebe summer squad leaders.

Measures

Traits. The 16PF was developed by Raymond B. Cattell in 1949 (Cattell, 1950). Since that time, it has matured into one of the most important personality assessment instruments available to behavioral scientists. The 16PF was developed via factor analysis of hundreds of traits and was finally revised to include what Cattell believed were the 16 core dimensions

of personality. The 16PF is typically used to measure personality traits in normal populations, unlike an instrument such as the Minnesota Multiphasic Personality Inventory (MMPI) which is usually used to assess abnormalities.

The 16PF is administered to all midshipmen during their first week at USNA. It is scored on 10-point bi-polar adjective scales. The sixteen personality traits measured include: warmth, intelligence, emotional stability, dominance, impulsiveness, conformity, boldness, sensitivity, suspiciousness, imagination, shrewdness, insecurity, radicalism, self-sufficiency, self-discipline, and tension. Based upon the descriptions of the 16 traits given by Krug (1981), five traits were selected as likely predictors of leadership:

Warmth - Personable and easy to get along with. Persons scoring high on this trait are often more satisfied in occupations where interpersonal contact is a critical feature. This trait is an indicator of "people-orientation."

Intelligence - A rough measure of intellectual functioning. Although the population at the Naval Academy (M = 7.4, SD = 1.5, range = 5) is certainly not representative of intelligence found in the general population (M = 5), there is sufficient variation in this measure for the current study. While indications from previous work were that aptitude as measured by SAT scores were not predictive of leadership (see Atwater & Yammarino, 1989; Yammarino & Bass, 1989), the literature suggests that intelligence is a consistent correlate of leadership (Lord et al., 1986).

Boldness - High scoring individuals are adventurous, bold, and energetic. Karson and O'Dell (1976) have called this the "Errol Flynn" factor. These individuals enjoy being the focus of attention in a group and are quick decision makers. Competitive athletes score significantly

above average on this dimension. This measure was selected instead of dominance as it appeared in the description to be more directly linked to leadership. The dominance trait was described as aggressive, directive, forceful with others, and preferring their own way.

Self-discipline - Self-discipline was chosen as a potential predictor because of its relevance to leadership positions in the highly regimented, highly structured environment of USNA. It is a measure of control over emotions and behavior and being organized and neat. These are all features thought to be advantageous to success as a midshipman at USNA.

Conformity - Individuals who score high on this scale tend to be persistent, respectful of authority, and good at following the rules. Military cadets tend to score above average (Karson & O'Dell, 1974). This is a characteristic also likely to be very important to success as a midshipman at USNA.

The imaginative personality factor was believed to be a predictor of transformational leadership, but it was not included in analyses because as measured by the 16PF, this trait is described as "the absent-minded professor factor." It does not measure imagination in the visionary, creative sense. Emotional stability as a personality trait measured by the 16PF also was excluded because its description was a very clinical one. It measures one's ability to stick with a task and not become easily distracted. Emotional coping, a component of the CTI (described below), measured emotional stability in a more appropriate way.

Psychological Type. The Myers-Briggs Type Indicator (MBTI) was administered to each midshipmen leader in his/her third-class (sophomore) year. The MBTI measures preferences in the following areas (see Myers & McCaulley, 1986 for details):

Extraversion/Introversion (E/I) - The first preference concerns how the individual relates to the world; i.e., whether s/he is primarily internally oriented (introverted) or oriented toward others (extraverted).

Sensing/Intuiting (S/N) - The second preference concerns the way in which an individual collects data for decision-making. Sensing types take in data via the senses while intuitives focus on future possibilities and see beyond that which is immediately available.

Thinking/Feeling (T/F) - This scale concerns an individual's orientation toward making decisions. Thinking types make logical decisions based on objective facts while feeling types base judgments and decisions on personal values and other people's feelings.

Judging/Perceiving (J/P) - This is an individual's preference for lifestyle. Judging types like a planned organized approach to life and tend to want things settled and decided. Perceiving types are adaptable, flexible, and like to stay open to new experiences.

Two of the preferences were expected to be predictive of leadership: extraversion and feeling. No directional hypothesis regarding sensing versus intuiting was formulated as both types could be leadership-oriented. It was believed that the preferences related to decision-making (thinking/feeling and sensing/intuiting) would be the most directly related to leadership. These scales were scored "two" for E,S,T, or J, and "one" for I,N,F, or P.

Experience-Varsity Sports. A predictor was included which indicated the level of a midshipman's involvement in varsity sports while at USNA. This measure was the number of varsity sports the midshipman had played averaged across semesters. If the midshipman played two varsity sports each of six semesters, the score was two. Forty-three percent of the midshipmen

squad leaders had engaged in varsity sports.

Vocational Interests. The Strong-Campbell Interest Inventory (SCII) is completed by all applicants to USNA as part of their admission application. The inventory consists of 325 items which are divided into seven parts. Five of the parts measure likes and dislikes of various occupations, school subjects, activities, amusements and types of people. The scale for these five parts is a three-point format: like, indifferent, dislike. The sixth part measures preferences between a given pair of activities (e.g., airline pilot or airline ticket agent). The seventh part asks the subject to describe his/her own characteristics (e.g., "usually start activities of my group").

Researchers at the Navy Personnel Research and Development Center (NPRDC) have used SCII items to create a career interest scale which predicts career tenure and is related to persistence at USNA (Alf, Neumann, & Matson, 1988). While these scales were unrelated to transactional or transformational leadership at USNA or in the fleet (see Atwater & Yammarino, 1989; Yammarino & Bass, 1989), it was of interest in this study to determine whether any of the 325 individual items on the SCII were correlated with leadership. On the basis of item content analysis by judges knowledgeable about leadership, 58 items were hypothesized to be related to leadership (see results below).

Thinking Style. Epstein's Constructive Thinking Inventory (CTI) was administered to the midshipmen leaders in groups, approximately six months after their duties as plebe summer squad leader had been completed. They completed the instrument before being debriefed on the preliminary results of the study. The CTI scales (Epstein & Meier, undated) were derived from a factor analysis of items that sampled people's everyday constructive and

counter-productive thinking. The six scales measured by the CTI are described below.

1. Emotional Coping is made up of nine items such as: "I worry a great deal about what other people think of me"; "when unpleasant things happen to me, I don't let them prey on my mind"; "I tend to take things personally" (reverse scored); and "it bothers me when anyone doesn't like me" (reverse scored). Epstein and Meier (undated) report that those who score high on emotional coping are self-accepting and tend not to overreact to unfavorable experiences.

2. Behavioral Coping contains 12 items such as: "I am the kind of person who takes action rather than just thinks or complains about a situation"; "I look at challenges not as something to fear, but as an opportunity to test myself and learn"; and "when faced with upcoming events, I usually carefully think through how I will deal with them." Epstein and Meier (undated) suggest that people high on behavioral coping are action-oriented, optimistic, and do not dwell on past injuries.

3. Categorical Thinking contains 12 items that refer to thinking in extreme, rigid, judgmental ways, and being intolerant of others. Items in this scale include: "If I do poorly on an important test, I feel like a total failure and that I won't go very far in life"; and "there are basically two kinds of people in this world; good and bad."

4. Superstitious Thinking contains nine items such as: "I believe if I think terrible thoughts about someone, it can affect that person's well-being"; and "I believe in not taking any chances on Friday the 13th."

5. Naive Optimism is a measure of counter-productive thinking, which includes seven items that refer to grossly overgeneralizing from positive events. Items include: "I think everyone should love their parents"; and "I

believe people can accomplish anything they want to if they have enough willpower."

6. Negative Thinking is predominantly a "doom and gloom" scale. The 10 items include: "When I am faced with a new situation, I tend to think the worst possible outcome will happen"; and "my mind sometimes drifts to unpleasant events from the past."

The response scale for the CTI is: 1 = definitely false, 2 = mostly false, 3 = neither true nor false, 4 = mostly true, and 5 = definitely true. High scores indicate the use of that type of thinking style by an individual. While not correlated with traditional measures of IQ or academic achievement, CTI scales correlate with success in living, success in work, success in social relationships and emotional well-being (see Epstein & Meier, undated). Emotional coping and behavioral coping were expected to be the most likely predictors of leadership.

Leadership Measures. The leadership data were collected at the end of the third week of Plebe Summer in August of 1988. A version of the Multifactor Leadership Questionnaire (MLQ), described in detail by Bass (1985) and Bass and Avolio (1989), was modified slightly for this population. Squad leaders (focal leaders) completed questionnaires primarily describing their perceptions of their own leadership behavior. Plebes completed a subordinate form of the questionnaire about their squad leader at the end of the first three-week indoctrination period, immediately after their squad leader had left USNA for summer cruise. Company Officers filled out leadership questionnaires describing the leader behavior of the squad leaders of whom they were in charge. Respondents completing the questionnaires indicated the frequency of various leadership behaviors observed (or in the case of self assessments, performed). Items were rated

on five-point format ranging from 0 = "not at all" to 4 = "frequently if not always." Some items also asked for the respondents' reactions to the focal leader and were rated on the same frequency scale.

Nine leadership scales were formed by averaging the responses to the items using the procedure described by Yammarino and Bass (1989). The transformational leadership scales and a sample item from each scale (subordinate form) were:

1. Charisma - (6 items) - I am ready to trust him/her to overcome any obstacle.
2. Individualized Consideration - (6 items) - Gives personal attention to me when necessary.
3. Intellectual Stimulation - (6 items) - Shows me how to think about problems in new ways.
4. Inspirational Leadership - (6 items) - Provides vision of what lies ahead.

The transactional leadership scales and a sample item from each scale were:

5. Contingent Promises - (3 items) - Talks about special rewards for good work.
6. Contingent Rewards - (3 items) - Personally pays me a compliment when I do good work.
7. Management by Exception - Active - (4 items) - Would reprimand me if my work was below standard.
8. Management by Exception - Passive - (4 items) - Shows he/she is a firm believer in "if it ain't broken don't fix it."

The non-leadership scale and a sample item was:

9. Laissez-Faire - (6 items) - However I do my job is OK with him/her.

Results

Correlational Results

Intercorrelations among the thinking styles scales (CTI) are presented in Table 1. Many of the scales were correlated. The intercorrelations were very similar to those found by Epstein and Meier (undated), however, the significant positive correlation between naive optimism and behavioral coping and significant negative correlation between naive optimism and categorical thinking found in this study were not significant in the Epstein and Meier studies.

Insert Table 1 about here

Intercorrelations of the personality variables (16PF) are presented in Table 2. As expected, there were a number of significant correlations, most in the .2 to .3 range. Of the five variables considered as potential predictors of leadership, the correlation between boldness and warmth (.29), boldness and self-discipline (.29), and self-discipline and conformity (.43) were significant.

Insert Table 2 about here

The intercorrelations of the MBTI scales are presented in Table 3. The only significant correlation was between S/N and J/P (.38), indicating that sensing types tend also to be judging types.

Insert Table 3 about here

Correlations between MBTI scales and the thinking styles scales (CTI) are presented in Table 4. The majority of the correlations were not significant with the exception of E/I with behavioral coping, superstitious thinking and negative thinking. The correlations suggest that extraverts tend to score higher on behavioral coping and lower on superstitious and negative thinking. T/F correlates positively with emotional coping, thinking types score higher on emotional coping than feeling types.

Insert Table 4 about here

Correlations among the personality variables and the thinking styles (CTI) and MBTI scales are presented in Table 5. Noteworthy are the positive correlations of boldness with emotional and behavioral coping and the negative correlation of this trait with superstitious, negative, and categorical thinking. Self-discipline also correlated positively with constructive thinking and negatively with counter-productive thinking. The largest correlations among personality and MBTI scales were those between E/I and warmth (.33) and between E/I and boldness (.36). Extraverts tended to be both warm and bold or adventurous.

Insert Table 5 about here

The correlations between the thinking styles (CTI), personality, and MBTI scales with the average number of varsity sports played per semester are presented in Table 6. The number of varsity sports played correlated positively with behavioral coping and negatively with superstitious thinking and conformity.

Insert Table 6 about here

Intercorrelations among the leadership scales as perceived by subordinates and superiors are presented in Table 7. The intercorrelations among the measures of transformational leadership ranged from .76 to .88 for subordinates and from .51 to .80 for superiors. The intercorrelations among the transactional scales had a greater range for superiors and subordinates. In general, the pattern of correlations among the transformational, transactional, and non-leadership scales were compatible with prior work (Bass, 1985; Bass & Avolio, 1989; Yammarino & Bass, 1989).

Insert Table 7 about here

Combined Scales Correlational Results

For the purposes of the correlation and regression analyses which follow, the transformational and transactional subscales were combined into two overall measures of transformational and transactional leadership for each rater group. Transformational leadership was created by averaging the four subscales of charisma, individualized consideration, intellectual stimulation, and inspirational leadership for subordinates and for superiors. Transactional leadership was created by averaging two subscales, contingent rewards and contingent promises, which correlated .74 for subordinates and .59 for superiors. Because the management-by-exception scales did not correlate consistently with the contingent reward and contingent promises scales, the management-by-exception scales were not included in the combined transactional scale. Laissez-faire was excluded

from further analyses because it represents the most inactive form of (non-) leadership (Bass, 1981, 1985).

The correlation between subordinate and superior perceptions of leadership for the combined transformational scale was .35. The correlation between subordinate and superior perceptions for the combined transactional scale was .24. Both correlations were statistically significant ($p<.05$).

Correlations between the previously hypothesized 58 items from the SCII and the combined leadership scales based on subordinate and superior perceptions are presented in Table 8. A number of the correlations were significant. For a number of the items, however, there was virtually no variance; i.e., 85% or more of the sample endorsed only one of the alternative responses for that item. Of the 49 SCII items which had sufficient variability to yield meaningful correlations, 24 correlated with leadership as perceived by subordinates and/or superiors. For items 1 through 278, a negative correlation means that "liking" for the interest is associated with the presence of leadership. The positive correlation for item 287 suggests that higher scores on leadership as rated by subordinates are associated with the focal leaders preferring to "tell somebody else to do the job" rather than "doing the job themselves." For personal characteristics, negative correlations indicate endorsement of the characteristic. For example, individuals seen as more transactional and transformational by superiors are more likely to say that they "usually start activities of their group." Individuals who scored higher on the leadership scales as seen by subordinates feel less likely to "win friends easily" than those who were rated lower on leadership. These correlations based on SCII items suggest that it may be worthwhile to pursue the development of SCII scales to predict leadership. With additional data,

scales could be developed which differentiate highly transformational leaders from non-leaders. The small sample size in this study, however, precluded this type of scale development.

Insert Table 8 about here

Correlations among the predictor variables (thinking style, personality traits, psychological type, and experience) and leadership as rated by superiors and subordinates are presented in Table 9. Subordinates' perceptions of focal midshipmen's transformational and transactional leadership were associated with emotional coping, intelligence, thinking/feeling, and varsity sports. Those scoring higher on leadership as perceived by subordinates tend to be more intelligent and feeling types who make decisions based on people's feelings. They also were likely to have had more involvement in varsity sports. The negative correlation between emotional coping and leadership was not in the expected direction. Closer examination of the content of the items on the emotional coping scale revealed an insensitivity to what others think as a dominant theme. While, in general, this characteristic may help individuals deal with criticism and may be a mark of individuality, it does not appear to be conducive to being seen as a transformational or transactional leader by subordinates. This is somewhat consistent with the correlation between leadership and not feeling that one wins friends easily (Table 8). Those who tend to feel overconfident or who are less sensitive are perceived as less transformational and less transactional. It is also consistent with the positive correlation between emotional coping and thinking/feeling (Table 4). Thinking types, who make decisions based on facts rather than people's

feelings, score higher on emotional coping and are perceived as less transactional and less transformational.

Correlations among predictors and superiors' perceptions of transformational and transactional leadership present a very different picture. Behavioral coping, negative thinking, naive optimism, conformity, and thinking/feeling correlated significantly with superiors' perceptions of both transactional and transformational leadership. Midshipmen leaders as perceived by superiors tended to be action-oriented, positive thinking, and feeling types who were conforming. Only "feeling type" correlated with transformational and transactional leadership perceptions of both subordinates and superiors.

Insert Table 9 about here

Combined Scales Regression Results

To better understand the predictors of leadership, regression analyses were performed using transactional and transformational leadership as separate dependent variables. Based on the previously cited literature, the hypothesized list of predictors included boldness, warmth, intelligence, self-discipline, conformity, extraversion/introversion, thinking/feeling, sensing/intuiting, varsity sports, behavioral coping, and emotional coping. Because of potential multicolinearity problems identified from correlational analyses, boldness, self-discipline, and extraversion/introversion were dropped from the regression analyses. These predictors also had the lowest correlations with the criterion measures.

Four separate hierarchical regression analyses were performed using the remaining eight predictors of transformational and transactional leadership

as perceived by superiors and subordinates of the focal midshipmen. Independent variables were entered in sets, with thinking styles (behavioral and emotional coping) first, personality traits (warmth, intelligence, and conformity) second, psychological type (sensing/intuiting and thinking/feeling) third, and experience in varsity sports last. The rationale for entering variables in this order was to capture their development in an individual. It was reasoned that an individual's thinking style develops early, traits appear, then preferences emerge, and finally experiences occur. Alternative orders for the variables could be easily rationalized. However, because interest was in the total (rather than additive) predictive power of these variables, the grouping of predictors into sets was more important than the actual order in which the sets of predictors were entered into the regression equations.

The regression results presented in Table 10 indicate that these predictors accounted for 28% of the variance in subordinates' perceptions of transformational leadership of midshipmen leaders. The multiple R of .526 was significant ($p<.005$). The best, non-redundant predictors were intelligence and varsity sports (standardized betas of .223 and.310, respectively). The standardized beta (-.207) for thinking/feeling approached significance ($p = .08$).

Insert Table 10 about here

The regression results predicting superior's reports of transformational leadership of midshipmen leaders are presented in Table 11. The regression equation was not significant beyond the first step in which behavioral coping and emotional coping accounted for 10% of the variance

(multiple R = .322). The standardized beta (-.248) for thinking/feeling approached significance (p = .08).

Insert Table 11 about here

As shown in Table 12, subordinates' reports of transactional leadership of midshipmen leaders were also predicted significantly (multiple R = .572, $p<.01$) by the independent variables. The predictors in this analysis were similar to those predicting transformational leadership as perceived by subordinates. The best predictors were intelligence, varsity sports, and thinking/feeling.

Insert Table 12 about here

The predictors of superiors' reports of transactional leadership of midshipmen leaders are presented in Table 13. The regression equation was not significant beyond the third step. Varsity sports entered on the last step did nothing to improve the prediction of transactional leadership as perceived by superiors, and in fact, reduced the statistical significance of the equation. Both behavioral coping (standardized beta = .256, p = .11) and thinking/feeling (standardized beta = -.296, p = .04) contributed to the prediction, and at the end of the third step, accounted for 24% of the variance.

Insert Table 13 about here

In summary, results indicated that a number of significant relationships existed between personal attributes and transformational and transactional leadership as rated by superiors and subordinates of midshipmen leaders. These correlations and regression results are particularly noteworthy because leadership was evaluated by subordinates and superiors while personal attribute data came from the focal leaders. Thus, there was no same-source (common-method) bias present in these results. Of additional interest are the similar patterns of predictors for transactional and transformational leadership when evaluated by the same rater, yet the differing patterns of predictors between rater groups (superiors versus subordinates).

Discussion

The results from this study suggest that personal attributes are related to the way an individual is perceived as a leader. Thinking styles, personality traits, psychological type, and experiences in varsity athletics each had components relevant to leadership.

Thinking Style

While thinking styles were related to both transactional and transformational leadership as seen by both superiors and subordinates, leadership was not always associated with constructive thinking. In some cases, thinking referred to as counter-productive (Epstein & Meier, undated) was predictive of leadership. Emotional coping, which was hypothesized to be positively related to leadership, was in fact negatively related to leadership as perceived by subordinates and unrelated to leadership as perceived by superiors. Close examination of the emotional coping scale revealed an insensitivity to others' opinions, and perhaps, a "cocky" or arrogant feature. Scoring high on emotional coping means an individual is

not overly sensitive to what others think--but at some point "not overly" appears to become "not sufficiently." Kenny and Zaccaro (1983) estimated that between 49% and 82% of leadership variance can be attributed to stable characteristics which may involve the ability to perceive the needs and goals of subordinates. If subordinates' opinions are of little interest to a leader, their needs and goals may also be unimportant.

The counter-productive thinking style, naive optimism, was positively correlated with superiors' perceptions of leadership. Perhaps superiors see this naive optimism as a "can-do" spirit. Negative thinking was negatively correlated with leadership supporting the contention that superiors see leadership behaviors in those who are positive thinkers (perhaps to the point of being naive or unrealistic at times).

Superiors' perceptions of leadership also were correlated with high scores on behavioral coping. Behavioral coping is an action-oriented, organized, not easily frustrated type of thinking style. This too is consistent with positive thinking and "can-do" attitudes. In general, therefore, subordinates' and superiors' perceptions of leadership had very different patterns of thinking style correlates.

Traits

Warmth, intelligence, boldness, conformity, and self-discipline were suggested in the literature as correlates of leadership. Intelligence correlated with subordinates' perceptions and conformity and self-discipline correlated with superiors' perceptions. Neither warmth nor boldness correlated with leadership.

Fiedler and Leister (1977) would predict that intelligence would be related to leader performance when stress was low and the leader was motivated to lead. Both conditions existed for the squad leaders in this

study. While stress is high for the subordinates, the stress on squad leaders is relatively low. They are in charge and motivated to be good leaders.

The correlations between superiors' perceptions of leadership and conformity and self-discipline on the part of leaders support the assertion that subordinates and superiors perceive leadership quite differently. While the overall inter-rater correlations between subordinates' and superiors' perceptions of leadership were significant (ranging from .24 to .35), predictors which were associated with subordinates' as compared to superiors' perceptions of leadership differed. Superiors tended to see those who endorse high levels of conformity and self-discipline as leaders. These appear to be characteristics of effective followers as well as effective leaders. The thinking styles related to superiors' perceptions of leadership, optimism and action-orientation, also support the suggestion that superiors really value characteristics of effective followers, and perhaps, what they are evaluating as leadership is really "good followership." This fits conceptually with the roles held at each level. Squad leaders are often evaluated by superiors on their abilities to accept and carry out responsibilities. It appears that when superiors are rating leadership their perceptions are influenced by the individual's success as a subordinate.

The lack of relationship between warmth and leadership may be partially explained by the unique leadership situation studied. Plebe Summer squad leaders are supposed to be strict and tough on the plebes. They are indoctrinating "undisciplined" civilians into a highly structured military culture. Warmth may be suppressed in these leaders. The hypothesis that transactional leaders would score higher on warmth than transformational

leaders was not supported.

The low correlations between boldness and leadership were surprising and are not easy to explain. Energetic, adventuresome, quick decision-makers were expected to describe Plebe Summer leaders, but data did not support this assertion. Perhaps future research will shed additional light on this unexpected finding.

Hollenbeck, Brief, Whitener, and Pauli (1988) discuss the uses of combining personality and aptitude assessment in personnel selection. In their study, measures of self-esteem interacted with aptitude to predict performance of salesmen; locus of control interacted with aptitude to predict performance of college students. Future research may want to address the possible interactions between the aptitude selectors already being used at USNA and personality/thinking variables used in this study. Perhaps scholastic aptitudes are predictive of leadership if certain motivational moderators are considered.

Psychological Type

Feeling types as measured by the MBTI were more likely to be seen as transactional and transformational leaders by both subordinates and superiors. Feeling types base judgments and decisions on personal values and other people's feelings as opposed to thinking types who are more influenced by logic and objective facts. This relationship supported the hypothesis concerning thinking/feeling.

The midshipmen population is approximately 25% feeling types and 75% thinking types. While these percentages are consistent with other military populations studied, they are much lower than the proportion of feeling types in the general population (Myers & McCaulley, 1986). It is also the case that feeling types at USNA are almost twice as likely to voluntarily

resign as thinking types. While thinking types may have an advantage in terms of the academic requirements at USNA, they may have a disadvantage in terms of becoming transformational and transactional leaders.

While sensing/intuiting did not predict a significant, unique portion of leadership variance in the regression equations, it was correlated ($r = .17$, $p = .07$) with subordinates' perceptions of transformational leadership. Extraversion, however, was not related to leadership behavior as was hypothesized. Those who work with the MBTI (Roush, 1989) contend that because introverts must deal with the external world to function in society, they often develop extraverted skills even though it is not their preference. It is also possible, given the lack of relationship with the personality trait boldness, that outgoing, adventurous individuals are not necessarily any more likely to behave as leaders than their shy, less adventurous counterparts.

Experience-Varsity Sports

Experience as a varsity athlete correlated positively with leadership as perceived by subordinates but was not related to leadership as perceived by superiors. This positive finding from subordinates is not likely due to halo. As suggested in an earlier report (Atwater & Yammarino, 1989), varsity athletes are resented somewhat by their peers at USNA because their athletic status "gets them out of a lot" (military drill, watchstanding, etc.). The subordinates in this sample were also very new to USNA and probably were unaware of their squad leader's athletic activities during the previous two to three years.

Discussions with athletes did reveal, however, that they believe that varsity athletics teach them about teamwork, cooperation, consideration for others, and putting the team before themselves -- all qualities of a

transformational leader. Those involved with recruiting USNA varsity athletes have asserted for years that athletics are beneficial for future Naval Officers. Although individuals who are involved in making admission decisions weight candidates' athletic experience positively, there has never been any solid data to support these feelings. Some evidence for the importance of athletics, however, has been presented in this study.

Vocational Interests

The results from the SCII are tentative. The correlations do suggest that there may be some merit in future scale development using these items. It would be of interest in future work to develop and cross-validate leadership potential scales to see if subsequent leadership performance could be predicted similar to the way the SCII scales are currently used to predict academic and career interests. It would also be of interest to apply the scale used by Nash (1965) to predict managerial effectiveness to a larger sample of leaders.

Regression Analyses

Most of the individual predictors have been discussed in the previous sections. It is noteworthy, however, that a number of the hypothesized predictors significantly predicted transactional and transformational leadership as perceived by subordinates and did quite well predicting transactional leadership as rated by superiors. The fact that subordinates' perceptions were explained better by the predictors than superiors' perceptions was probably due in part to subordinates' intense experiences with the focal leaders.

Similarities existed in the predictors of both transactional and transformational leadership for each rater group. If, as Waldman, Bass, and Yammarino (1988) suggest, transformational leadership builds upon

transactional leadership, it is not surprising that the same variables that predict one form of leadership would predict the other.

Conclusions

In general, the results from this study lend support to the notion that personal attributes are potential predictors of subsequent leadership. Future work needs to replicate the usefulness of these predictors in a larger sample of midshipmen, as well as in the Navy fleet, and eventually in settings outside the military. At this point, the potential usefulness of thinking styles, personality traits, psychological type, and experiences in athletics in predicting leadership has been demonstrated.

Of particular importance in future analyses is a test of the hypothesis suggested here that superiors and subordinates attend to different attributes in assessing leadership. If this finding is replicated, the idea that either superiors or subordinates ratings can be used interchangeably is certainly questionable. It also may provide insight as to why earlier findings regarding predictors of leadership were inconsistent. Not only are leadership criterion measures and methods important, when observations or ratings of leadership are being used, the rating source must be considered. The value of predictors differ depending on who is assessing the leadership. Priorities associated with roles and hierarchical levels of raters may greatly influence what personal attributes are seen as predictive of leadership.

In addition, if superiors are assessing subordinates' leadership skills (which very often is the case in performance evaluation systems) and they are heavily influenced by the degree to which that individual is a "good follower," ultimately those promoted to the highest levels in an organization will be the best followers, not the best leaders. In summary,

the current research has shed new light on the issue of leader selection and the merits of personal attributes in that pursuit. Additional research must be completed before concrete selection recommendations are made.

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Table 1

Intercorrelations of Thinking Styles (CTI) Scales

	M	SD	α	EC	BC	CAT	ST	NO
Emotional Coping (EC)	3.2	.65	.78					
Behavioral Coping (BC)	4.1	.49	.77	.46				
Categorical Thinking (CAT)	2.1	.49	.61	-.37	-.40			
Superstitious Thinking (ST)	2.0	.58	.66	-.32	-.40	.28		
Naive Optimism (NO)	3.7	.54	.63	.09	.23	-.33	-.05	
Negative Thinking (NT)	3.2	.47	.63	-.29	-.50	.42	.46	-.22

Note: $N = 86$; $r \geq .21$, $p \leq .05$.

Table 2

Intercorrelations of Personality Variables

	M	SD	WARM 1	INT 2	EMO 3	DOM 4	IMP 5	CONF 6	BOLD 7	SENS 8	SUSP 9	IMAG 10	SHRW 11	INSC 12	RAD 13	SUF 14	DISC 15
Warmth	6.1	1.8															
Intelligence	7.4	1.5	-.02														
Emotional Stability	7.4	1.8	-.01	.07													
Dominance	6.8	1.5	-.01	.08	.02												
Impulsivity	6.6	1.9	.29	-.03	.21	.26											
Conformity	7.7	1.8	.01	-.03	.19	-.19	-.12										
Boldness	6.9	2.0	.29	-.03	.31	.34	.50	.14									
Sensitivity	4.5	1.9	.28	-.04	-.19	-.11	-.06	-.08	.04								
Suspiciousness	4.4	2.0	-.02	.01	-.23	.34	.17	-.28	.05	.04							
Imagination	5.6	1.9	-.11	.07	.07	.07	.14	-.05	-.03	.21	.01						
Shrewdness	5.0	1.9	-.01	.04	.16	-.19	-.31	.16	-.07	-.05	-.19	-.16					
Insecurity	3.7	1.8	-.06	-.07	-.53	-.05	-.21	-.15	-.36	-.04	.19	-.29	.03				
Radicalism	4.9	1.9	-.11	.22	.02	.23	.02	-.22	-.02	.03	.32	.07	-.15	.09			
Self-Sufficiency	5.6	1.9	-.37	.09	-.03	-.03	-.27	-.03	-.29	-.08	-.06	.18	-.07	.01	.14		
Self-Discipline	7.7	1.8	.03	-.01	.34	.20	-.08	.43	.29	-.10	-.33	-.04	.16	-.40	-.10	.00	
Tension	4.1	2.2	-.06	-.11	.55	.08	-.07	-.23	-.29	-.02	.36	-.29	-.15	.56	-.08	-.13	-.41

Note: $N = 105$; $r \geq .19$, $p \leq .05$.

Table 3

Intercorrelations of MBTI Scales

MBTI	M	SD	E/I	S/N	T/F
Extraversion/Introversion (E/I)	1.6	.50			
Sensing/Intuiting (S/N)	1.7	.44	-.02		
Thinking/Feeling (T/F)	1.8	.40	.02	.02	
Judging/Perceiving (J/P)	1.7	.45	-.06	.38	.00

Note: $N = 105$; $r \geq .19$, $p \leq .05$.

Table 4

Correlations Among MBTI and Thinking Styles Scales

	MBTI			
Thinking Styles (CTI)	E/I	S/N	T/F	J/P
Emotional Coping	.09	-.08	.38	.03
Behavioral Coping	.24	.08	-.02	.02
Categorical Thinking	-.16	-.08	.05	-.07
Superstitious Thinking	-.21	-.13	.06	-.10
Naive Optimism	.11	-.12	-.17	-.08
Negative Thinking	-.21	-.19	.10	-.10

Note: $N = 74$; $r \geq .21$, $p \leq .05$.

Table 5

Correlations Among Personality Variables, Thinking Styles, and MBTI Scores

	Personality															
	WARM	INT	EMO	DOM	IMP	CONF	BOLD	SENS	SUSP	IMAG	SHRW	INSC	RAD	SUF	DISC	TEN
CTI[a]																
Emotional Coping	-.02	-.06	.27	.14	.11	.14	.41	.09	-.06	.24	-.07	-.54	.00	.13	.30	-.52
Behavioral Coping	.11	-.11	.10	.01	.13	.19	.38	-.01	-.14	-.09	-.03	-.34	-.18	-.10	.26	-.30
Categorical Thinking	-.07	.03	-.11	.16	-.20	.06	-.28	-.10	.02	-.01	-.09	.27	.07	.06	-.21	.26
Superstitious Thinking	.03	-.13	-.14	-.02	.14	.02	-.24	.17	-.11	-.16	.14	.28	.07	-.13	-.09	.18
Naive Optimism	.15	-.12	-.07	.07	.09	.15	.08	.11	.06	.07	-.17	-.01	.02	-.09	.12	.08
Negative Thinking	-.02	-.02	-.37	-.01	-.13	-.24	-.24	.25	.19	-.04	-.08	.33	.21	.03	-.23	.34
MBTI[b]																
Extraversion/Intro	.33	.04	.21	.12	.36	.03	.36	.07	-.03	.10	-.01	-.23	-.10	-.22	.06	-.18
Sensing/Intuiting	.17	-.03	-.10	-.21	-.12	.16	.02	-.16	-.17	-.18	.17	.02	-.21	-.02	.09	.15
Thinking/Feeling	-.07	-.01	.10	.13	-.01	.06	.09	-.04	-.21	-.01	.04	-.21	-.10	.11	.06	-.21
Judging/Perceiving	-.06	-.02	-.06	-.06	-.32	.10	-.02	.00	-.02	-.01	.15	.03	-.12	.03	-.21	.14

[a] $N = 74$; $r \geq .21$, $p \leq .05$.
[b] $N = 105$; $r \geq .19$, $p \leq .05$.

Table 6

Correlations of Personal Attributes With Varsity Sports Played

Thinking Styles (CTI) (N = 74)	Varsity Sports Played
Emotional Coping	-.13
Behavorial Coping	.21*
Categorical Thinking	-.16
Superstitious Thinking	-.24*
Naive Optimism	-.01
Negative Thinking	-.18
Personality Traits (16PF) (N = 105)	
Warmth	-.15
Intelligence	-.06
Emotional Stability	.07
Dominance	.08
Impulsivity	-.02
Conformity	-.24*
Boldness	.02
Sensitivity	-.16
Suspiciousness	.12
Imagination	-.15
Shrewdness	.12
Insecurity	.05
Radicalism	-.03
Self-Sufficiency	-.13
Self-Discipline	.00
Tension	.02
MBTI Scores (N = 105)	
Extraversion/Intro	.00
Sensing/Intuiting	.11
Thinking/Feeling	.15
Judging/Perceiving	-.02

* $p \leq .05$.

Table 7

Intercorrelations Among MLQ Leadership Measures Based on Subordinates' and Superiors' Responses

MLQ Measures	α	M	SD	LCH	LIC	LIS	LIL	LCP	LCR	LM-A	LM-P
Transformational Leadership											
Charisma (LCH)	.92 (.93)	2.80 (3.32)	.62 (.74)								
Individualized Consideration (LIC)	.77 (.86)	2.51 (3.07)	.47 (.68)	.78 (.61)							
Intellectual Stimulation (LIS)	.81 (.79)	2.64 (2.86)	.39 (.57)	.82 (.79)	.76 (.51)						
Inspirational Leadership (LIL)	.77 (.76)	2.69 (2.85)	.41 (.58)	.88 (.80)	.86 (.68)	.83 (.78)					
Transactional Leadership											
Contingent Promises (LCP)	.72 (.70)	1.96 (2.37)	.50 (.68)	.64 (.52)	.77 (.53)	.65 (.50)	.68 (.55)				
Contingent Rewards (LCR)	.90 (.78)	2.46 (2.86)	.60 (.74)	.77 (.59)	.82 (.64)	.73 (.49)	.78 (.56)	.74 (.59)			
Mgmt.-by-Exception (Active) (LM-A)	.36 (.39)	3.43 (3.24)	.17 (.47)	-.04 (-.01)	-.23 (.06)	-.02 (.05)	-.09 (.03)	-.18 (.45)	-.12 (.21)		
Mgmt.-by-Exception (Passive) (LM-P)	.65 (.84)	1.71 1.55	.35 (.79)	-.13 (-.01)	.12 (-.12)	-.03 (.05)	-.02 (.06)	.31 (-.01)	-.13 (.05)	-.04 (.09)	
Non-Leadership											
Laissez-Faire (LLF)	.57 (.52)	.93 (.69)	.25 (.51)	-.58 (-.54)	-.41 (-.45)	-.50 (-.37)	-.51 (-.43)	-.23 (-.27)	-.41 (-.32)	-.15 (-.03)	.41 (.25)

Note: Superiors' perceptions appear in parentheses below corresponding subordinates' perceptions.
$r \geq .19$, $p \leq .05$.

Table 8

Significant Correlations Among Selected
Strong-Campbell (SCII) Items and Leadership Scales

	Subordinate Perceptions		Superior Perceptions	
	Trans-actional	Trans-formational	Trans-actional	Trans-formational
Occupations				
1 Actor/Actress				
6 Artist	-.18	-.20		
11 Author of children's books				
14 Auto mechanic		.19	.29	.25
21 Building contractor		.17	.22	.20
28 Children's clothes designer				
35 Corporation Lawyer				
38 Criminal lawyer				
40 Dental assistant				.17
62 Housekeeper		-.19		
68 Jet pilot	No Variance			
69 Judge				
73 Librarian				.16
77 Manager, Chamber of Commerce				
82 Military officer	No Variance			
87 Nurse's Aide	.22	.20		
92 Pharmacist		.18	.17	
96 Poet			.17	.18
98 Politician				
100 Professional athlete	No Variance			
113 Sculptor			.17	
School Subjects				
147 Home Economics				
158 Physical Education	No Variance			
159 Physics	No Variance			
162 Psychology				
163 Public Speaking				
Activities				
168 Making a speech				
170 Repairing a clock	.16	.17	.24	.22
179 Raising flowers & vegetables		.17		
183 Meeting and directing people		-.19		
184 Taking responsibility	No Variance			
185 Sewing				

Table 8 (continued)

	Subordinate Perceptions		Superior Perceptions	
	Trans-actional	Trans-formational	Trans-actional	Trans-formational
Activities (continued)				
189 Decorating a room of flowers				
191 Drilling soldiers			.17	.23
192 Pursuing bandits in a sheriff's posse		.20	.17	
200 Being a forest ranger				
Amusements				
225 Bridge				
226 Solving mechanical puzzles	.17	.19	.17	
235 Leading a scout troop	.16			
240 Sports page in newspaper		.18		
242 Skiing	No Variance			
252 Playing chess			.29	.33
Types of People				
260 Military officers	No Variance			
263 Ballet dancers				
265 People who assume leadership				
267 Aggressive people				
272 People who have made fortunes in business				
275 Outspoken people of new ideas				
277 Prominent business leaders	-.28	-.28		-.17
278 Athletic persons				
Preferences Between Activities				
282 Airline pilot/ airline ticket agent	No Variance			

Table 8 (continued)

	Subordinate Perceptions		Superior Perceptions	
	Trans-actional	Trans-formational	Trans-actional	Trans-formational
Preferences Between Activities (continued)				
287 Doing a job yourself /telling somebody else to do the job	.30	.27		
288 Dealing with things /dealing with people				
Your Characteristics				
312 Usually start activities of my group			-.32	-.28
313 Have more than my share of novel ideas				
314 Win friends easily	.25	.24		
320 Stimulate the ambitions of my associates				.16
324 Put drive into an organization				

Note: N = 105; * p < .10.

Table 9

Significant Correlations Among Predictors and Leadership Variables

	Subordinate Perceptions		Superior Perceptions	
	Trans-formational	Trans-actional	Trans-formational	Trans-actional
Thinking Styles[a]				
Emotional Coping	-.25**	-.32**		
Behavioral Coping			.22*	.28*
Catagorical Thinking				
Superstitious Thinking			-.20*	
Naive Optimum			.22*	.23*
Negative Thinking			-.26*	-.33*
Personality Traits[b]				
Warmth				
Intelligence	.20*	.23**		
Emotional Stability				
Dominance				
Impulsivity				
Conformity			.22*	.26**
Boldness				
Sensitivity				
Suspiciousness				
Imagnination				
Shrewdness				
Insecurity				
Radicalism				
Self-Sufficiency				
Self-Discipline				.24**
Tension				
MBTI Scores[b]				
Extraversion/Intro				
Sensing/Intuiting				
Thinking/Feeling	-.29**	-.35**	-.30**	-.30*
Judging/Perceiving				
Experience[b]				
Varsity Sports	.30**	.34**		

[a] N = 74
[b] N = 105
* $p < .05$
** $p < .01$

Table 10

Regression Equation Predicting Subordinate Perceptions of Transformational Leadership

Hierarchical Step	Predictors	r	Std. Beta	Multiple R	R^2	Change R^2
(1)	(CTI) Behavioral Coping	.07	.050			
(1)	(CTI) Emotional Coping	-.25*	-.133	.329*	.11	.11
(2)	(16PF) Warmth	.12	.126			
(2)	(16PF) Intelligence	.20*	.223*			
(2)	(16PF) Conformity	-.03	.044	.400*	.16	.05
(3)	(MBTI) Sensing/Intuiting	.17*	.160			
(3)	(MBTI) Thinking/Feeling	-.29**	-.207	.450*	.20	.04
(4)	Varsity Sports	.30**	.310**	.526**	.28	.08
	Total			.526**	.28	

*p ≤ .05
**p ≤ .01

Table 11

Regression Equation Predicting Superior
Perceptions of Transformational Leadership

Hierarchical Step	Predictors	r	Std. Beta	Multiple R	R^2	Change R^2
(1)	(CTI) Behavioral Coping	-.10	.273			
(1)	(CTI) Emotional Coping	.22*	-.162	.322*	.10	.10
(2)	(16PF) Warmth	.02	-.029			
(2)	(16PF) Intelligence	.07	.095			
(2)	(16PF) Conformity	.22*	.199	.387	.15	.05
(3)	(MBTI) Sensing/Intuiting	.06	.002			
(3)	(MBTI) Thinking/Feeling	-.30**	-.248	.477	.20	.05
(4)	Varsity Sports	.03	-.025	.477	.20	.00
	Total			.477	.20	(p = .12)

*p ≤ .05
**p ≤ .01

Table 12

Regression Equation Prediction Subordinate Perceptions of Transactional Leadership

Hierarchical Step	Predictors	r	Std. Beta	Multiple R	R^2	Change R^2
(1)	(CTI) Behavioral Coping	-.01	.013			
(1)	(CTI) Emotional Coping	-.32**	-.154	.360**	.13	.13
(2)	(16PF) Warmth	.07	.085			
(2)	(16PF) Intelligence	.23**	.243*			
(2)	(16PF) Conformity	-.14	-.044	.445**	.20	.07
(3)	(MBTI) Sensing/Intuiting	.10	.122			
(3)	(MBTI) Thinking/Feeling	-.35**	-.259*	.501**	.25	.05
(4)	Varsity Sports	.34**	.315**	.572**	.33	.08
	Total			.572**	.33	

*$p \leq .05$
**$p \leq .01$

Table 13

Regression Equation Predicting Superior Perceptions of Transactional Leadership

Hierarchical Step	Predictors	r	Std. Beta	Multiple R	R^2	Change R^2
(1)	(CTI) Behavioral Coping	.28**	.256			
(1)	(CTI) Emotional Coping	-.02	-.042	.327*	.11	.11
(2)	(16PF) Warmth	.08	.022			
(2)	(16PF) Intelligence	.07	.105			
(2)	(16PF) Conformity	-.26**	.227	.410	.17	.06
(3)	(MBTI) Sensing/Intuiting	.13	.070			
(3)	(MBTI) Thinking/Feeling	-.30**	-.296*	.489*	.24	.07
(4)	Varsity Sports	.02	-.002	.489	.24	.00
	Total			.489	.24	(p = .06)

*p ≤ .05
**p ≤ .01

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